

Amendments to the claims

Please amend the claims as follows:

1-28. (cancelled)

29. (original) A composition comprising a family of antigenic peptides having amino acid sequences having antigenic similarity to amino acid sequences of a variable region of a pathogen protein, wherein each antigenic peptide in the family has at least one amino acid position that varies relative to other antigenic peptides in the family.

30. (original) The composition of claim 29, wherein one amino acid residue occurs more frequently than another in the position that varies.

31. (original) The composition of claim 29, wherein the family includes greater than 150 mutually unique antigenic peptides.

32. (original) The composition of claim 29, wherein the family includes greater than 1,000 mutually unique antigenic peptides.

33. (original) The composition of claim 29, wherein the family includes fewer than 100,000 mutually unique antigenic peptides.

34. (original) The composition of claim 29, wherein the family includes fewer than 50,000 mutually unique antigenic peptides.

35. (original) The composition of claim 29, wherein the family includes between 1,000 and 50,000 mutually unique antigenic peptides.

36. (original) The composition of claim 29, wherein the pathogen protein is HIV gp120.

37. (original) The composition of claim 36, wherein the variable region is selected from the group consisting of the V1 region, the V2 region, the V3 region, the V4 region and the V5 region.

38. (original) The composition of claim 37, wherein the family of antigenic peptides includes sequences having antigenic similarity to sequences from a subtype of HIV.

39. (original) The composition of claim 38, wherein the subtype is selected from the group consisting of subtype A, subtype B, subtype C, subtype D, subtype F, subtype G, a recombinant subtype, a subtype of HIV group N, a subtype of HIV group O, and combinations thereof.

40. (original) The composition of claim 29, wherein at least two members of the family of antigenic peptides are mixed together.

41. (original) The composition of claim 29, wherein the family of antigenic peptides are separated according to sequence.

42. (original) The composition of claim 29, wherein the family includes a multiple antigenic peptide.

43- 101. (cancelled)

102. (original) A peptide library comprising a family of peptides including the fragment:

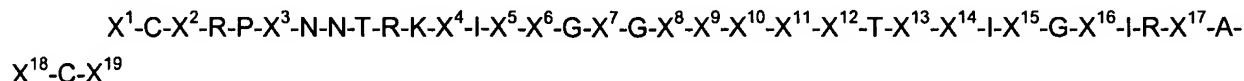
-N-N-T-R-K-X⁴-I-X⁵-X⁶-G-X⁷-G-X⁸-X⁹-X¹⁰-X¹¹-X¹²-T-X¹³-X¹⁴-I-X¹⁵-G-X¹⁶-I-R-

wherein each X⁴-X¹⁶ is a fragment zero, one, two or three amino acid residues in length.

103. (original) The peptide library of claim 102, wherein the family has antigenic similarity to the V3 region of HIV gp120.

104. (original) The peptide library of claim 103, wherein the family has antigenic similarity to the V3 region of HIV gp120 of HIV subtype B.

105. (original) The peptide library of claim 102, wherein the family of peptides have the formula:



wherein each X^1-X^{19} is a fragment zero, one, two or three amino acid residues in length.

106. (original) The peptide library of claim 105, wherein for each peptide of the family, X^1 independently is N, T, or H.

107. (original) The peptide library of claim 105, wherein for each peptide of the family, X^2 independently is T or I.

108. (original) The peptide library of claim 105, wherein for each peptide of the family, X^3 independently is N, S, or G.

109. (original) The peptide library of claim 105, wherein for each peptide of the family, X^4 independently is S, G, or R.

110. (original) The peptide library of claim 105, wherein for each peptide of the family, X^5 independently is H, P, N, T or Y.

111. (original) The peptide library of claim 105, wherein for each peptide of the family, X^6 independently is I or M.

112. (original) The peptide library of claim 105, wherein for each peptide of the family, X^7 independently is P, L, or W.

113. (original) The peptide library of claim 105, wherein for each peptide of the family, X^8 independently is R, Q, G or S.

114. (original) The peptide library of claim 105, wherein for each peptide of the family, X^9 independently is A, V or T.

115. (original) The peptide library of claim 105, wherein for each peptide of the family, X^{10} independently is F, W, or V.

116. (original) The peptide library of claim 105, wherein for each peptide of the family, X^{11} independently is Y, F or H.

117. (original) The peptide library of claim 105, wherein for each peptide of the family, X^{12} independently is T or A.

118. (original) The peptide library of claim 105, wherein for each peptide of the family, X^{13} independently is G, E or R.

119. (original) The peptide library of claim 105, wherein for each peptide of the family, X^{14} independently is E, Q, R or G.

120. (original) The peptide library of claim 105, wherein for each peptide of the family, X^{15} independently is I or T.

121. (original) The peptide library of claim 105, wherein for each peptide of the family, X^{16} independently is D or N.

122. (original) The peptide library of claim 105, wherein for each peptide of the family, X^{17} independently is Q or K.

123. (original) The peptide library of claim 105, wherein for each peptide of the family, X^{18} independently is H or Y.

124. (original) The peptide library of claim 105, wherein for each peptide of the family, X^{19} independently is N or T.

125. (original) The peptide library of claim 105, wherein for each peptide of the family, X^1 independently is N, T or H; X^2 independently is T or I; X^3 independently is N, S, or G; X^4 independently is S, G, or R; X^5 independently is H, P, N, T or Y; X^6 independently is I or M; X^7 independently is P, L, or W; X^8 independently is R, Q, G or S; X^9 independently is A, V

or T; X¹⁰ independently is F, W, or V; X¹¹ independently is Y, F or H; X¹² independently is T or A; X¹³ independently is G, E or R; X¹⁴ independently is E, Q, R or G; X¹⁵ independently is I or T; X¹⁶ independently is D or N; X¹⁷ independently is Q or K; X¹⁸ independently is H or Y; and X¹⁹ independently is N or T.

126. (original) The peptide library of claim 105, wherein at least two members of the family of peptides are mixed together.

127. (original) The peptide library of claim 105, wherein the family of peptides are separated according to sequence.

128. (original) The peptide library of claim 105, wherein the family includes greater than 150 mutually unique peptide sequences.

129. (original) The peptide library of claim 105, wherein the family includes fewer than 100,000 mutually unique peptide sequences.

130. (original) The peptide library of claim 105, wherein the family includes fewer than 500 mutually unique peptide sequences, the sequences being representative of the entire sequence diversity available.

131-279. (cancelled)